

MARCELLUS SHALE FAST FACTS

DECEMBER 2011 EDITION *

Each of the following sections is a quick snapshot of labor market information for Pennsylvania's Marcellus Shale (MS) related industries and related economic activity.

Section	Page
Background Information	2-3
MS Employment Summary	4
Jobs Data	5
Industry Data	6-7
Industry Wages	8
Job Posting Activity	9
High Priority Occupations	10-11

Section	Page
New Hires	12-13
Quarterly Workforce Indicators	14
Marcellus Wells Drilled & Unemployment Rates	15
Unemployment Rate Map	16
Definitions	17-19
Marcellus Shale Formation Map	20

*Note: The data in this edition include additional ancillary Marcellus Shale related industries and include government employment in all Marcellus Shale related industries. Therefore, the employment totals, new hire totals, and the average wages in this edition are not comparable to those found in the April 2011 edition.

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CENTER FOR WORKFORCE INFORMATION & ANALYSIS

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CWIA-MS

BACKGROUND INFORMATION

The purpose of this Fast Facts publication is to provide the most current available data on Marcellus Shale related economic activity. While several data sources are utilized in this document, the primary source is the Quarterly Census of Employment and Wages (QCEW).

The QCEW program derives its data from quarterly tax reports submitted to the Pennsylvania Unemployment Compensation system by employers subject to the state's unemployment insurance laws. This includes 95 percent or more of all wage and salary civilian employment in Pennsylvania.

In 2009, CWIA used the North American Industry Classification System (NAICS) to define the Marcellus Shale related industries. Much of the information included in this document reflects data on a group of six industries identified as "core," and a group of 30 industries identified as "ancillary" for Marcellus Shale related activity (see notes section below).

As Marcellus Shale related activity develops further in Pennsylvania, additional industries may be added to the ancillary group, based on factors such as significant employment gains in an industry in a Marcellus Shale geographic region or identification of a group of companies in the same industry involved in Marcellus Shale related activity. Of the current 30 ancillary industries, nine have been added since the April 2011 edition of this publication (* denotes one of the new nine).

Also included in this publication are several additional data sources that capture employer demand and hiring activity. For an explanation of all data sources, please refer to the "Definitions" section on page 17.

The data in this edition include government (federal, state, and local) employment in all Marcellus Shale related industries because significant non-private employment is present in a number of these industries, most notably Highway, Street, & Bridge Construction; Engineering Services; Water Supply & Irrigation Systems; and Sewage Treatment Facilities.

Notes:

Marcellus Shale Core Industries (NAICS): Crude Petroleum & Natural Gas Extraction (21111); Natural Gas Liquid Extraction (21112); Drilling Oil & Gas Wells (21311); Support Activities for Oil & Gas Operations (21312); Oil & Gas Pipeline & Related Structures Construction (23712); and Pipeline Transportation of Natural Gas (486210).

Marcellus Shale Ancillary Industries (NAICS): Fossil Fuel Electric Power Generation (22112); Natural Gas Distribution (22120); Water Supply & Irrigation Systems (22130); Sewage Treatment Facilities (22132); Water & Sewer Line & Related Structures Construction (23711); Highway, Street, and Bridge Construction (23731)*; Nonresidential Site Preparation Contractors (238912); Petrochemical Manufacturing (32511)*; Industrial Gas Manufacturing (32512); Iron & Steel Mills & Ferroalloy Manufacturing (33111¹); Iron & Steel Pipe & Tube Manufacturing from Purchased Steel (33121); Mining Machinery & Equipment Manufacturing (33313); Oil & Gas Field Machinery & Equipment Manufacturing (333132); Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers (423810)*; Industrial Machinery and Equipment Merchant Wholesalers (423830)*; Industrial Supplies Merchant Wholesalers (423840)*; General Freight Trucking, Local (484110)*; Specialized Freight Trucking, Local (484220); Specialized Freight Trucking, Long-Distance (484230); Lessors of Other Real Property (531190); Construction, Mining & Forestry Machinery & Equipment Rental & Leasing (532412); Engineering Services (541330); Geophysical Surveying & Mapping Services (541360); Testing Laboratories (541380); Environmental Consulting Services (541620); Remediation Services (562910); Commercial & Industrial Machinery & Equipment Repair & Maintenance (811310); Administration of Air and Water Resource and Solid Waste Management Programs (924110)*; Administration of Conservation Programs (924120)*; Regulation and Administration of Communications, Electric, Gas, and Other Utilities (926130)*.

While the vast majority of Marcellus Shale related employment can be found in these industries, not all establishments in these industries are involved in Marcellus Shale. Asterisks indicate industries that have been added to the group of ancillary industries since the April 2011 edition of this publication.

¹NAICS 331110 replaced NAICS 331111 due to a change made by the Bureau of Labor Statistics – for an explanation of the implications of this change, please refer to page 19 in the Definitions Section.

PENNSYLVANIA

ECONOMIC BACKGROUND

- **Pennsylvania's seasonally adjusted unemployment rate for October 2011 was 8.1%**
 - This was 0.9 percentage points below the U.S. rate of 9.0%.
 - O-T-M change was -0.2 percentage points.
 - O-T-Y change was -0.4 percentage points.
- **Pennsylvania's seasonally adjusted total nonfarm jobs for October 2011 was 5,690,900**
 - O-T-M change was +13,800.
 - O-T-Y change was +54,500.
 - PA was still down 118,700 jobs since the start of the recession (December 2007).
- **Pennsylvania's new hire activity increased**
 - There were 581,300 new hires across all industries in the 2nd quarter of 2011.
 - This was an increase of 43,100 over 2nd quarter 2010 (+8%).
- **Employer demand increased in Pennsylvania**
 - 178,300 job ads were posted online in October 2011.
 - This was an increase of 19,300 from October 2010.
- **In Pennsylvania there were 3.1 unemployed persons for every online job posting (October 2011)**
 - The Pennsylvania rate was better than the U.S. rate, which stood at 3.5.
 - The Pennsylvania rate was down from a peak of 4.8 unemployed per online job posting in late 2009.

O-T-M: Over the Month
O-T-Y: Over the Year

MARCELLUS SHALE RELATED

INDUSTRIES EMPLOYMENT:

SUMMARY STATISTICS

Employment (2008 Q1 to 2011 Q1):

- Core industries were up 10,900 (+114%).
- Ancillary industries were down 1,000 (<-1%).
- All industries declined 160,000 (-3%).
- 2011 Q1 Marcellus Shale related industries total employment was 214,000.

Establishments (2008 Q1 to 2011 Q1):

- More than 650 establishments were added (355 core, 303 ancillary).
- This represented 63% growth in the core industries and 2.5% growth in the ancillary industries; over the same time period, PA experienced 0.9% growth for all industries.
- Marcellus Shale related industries totaled 13,504 establishments in 2011 Q1

Wages (2010 Q2 through 2011 Q1):

- The average wage across all industries was \$46,222.
- The average wage in the core industries was \$76,036, which was more than \$29,800 greater than the average for all industries.
- The average wage in the ancillary industries was \$62,581, which was more than \$16,400 greater than the average for all industries.

New Hires (2008 Q2 to 2011 Q2):

- Statewide new hires in the core industries were 138.1% higher in 2011Q2 than in 2008Q2.
- Statewide new hires in the ancillary industries were 8.6% higher in 2011Q2 than in 2008Q2.
- Statewide new hires across all industries were 8.3% lower in 2011Q2 than 2008Q2.

Unemployment Rate:

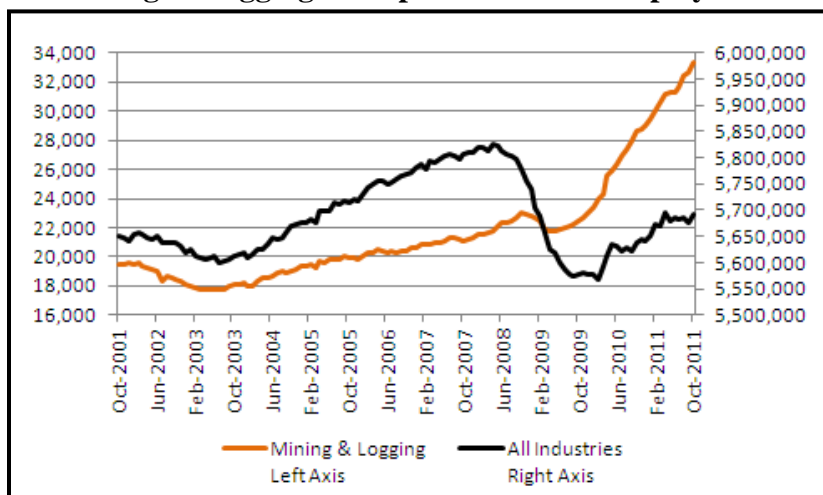
- Areas with significant Marcellus Shale drilling activity have seen notable decreases in unemployment rates
- From October 2009 to October 2011:
 - The six Workforce Investment Areas with substantial Marcellus drilling saw a combined decrease in unemployment rate of 1.6 percentage points;
 - The decrease in the PA unemployment rate was 0.4 percentage points;
 - North Central had the highest decrease of 2.8 percentage points; and
 - Northern Tier had a decrease of 1.7 percentage points; Central dropped 1.6

Online Job Postings (August 2011):

- There were 3,300 online job postings statewide in core and ancillary industries.

MINING JOBS VS. TOTAL JOBS IN PENNSYLVANIA

Mining & Logging¹ Compared to Total Employment



Current Employment Statistics *(All data are seasonally adjusted)*

- Total Pennsylvania Employment (October 2011).
O-T-M change was +13,800 (+0.2%).
O-T-Y change was +54,500 (+1.0%).
Change from 10 years ago was +38,900 (+0.7%).
- Mining & Logging Industries in Pennsylvania.
O-T-M change was +700 (+2.1%).
O-T-Y change was +4,800 (+16.8%).
Change from 10 years ago was +13,900 (+71.3%).

O-T-M: Over the Month
O-T-Y: Over the Year

Points to Note

- 34.5% of the increase in mining & logging employment over the last decade occurred in the past 12 months; 78.4% occurred in the past two years.
- While employment totals across all industries have yet to reach pre-recession totals, employment in mining & logging industries in Pennsylvania reached its highest level in October 2011, since the current data series began².

¹ Mining and Logging data are seasonally adjusted. Mining data, which are included in Mining and Logging, are not seasonally adjusted.

² The Current Employment Statistics data series began in 1990.

PENNSYLVANIA MARCELLUS SHALE RELATED INDUSTRIES DATA

Establishments & Employment in CWIA's Identified Core & Ancillary Marcellus Shale Related Industries

Core Industries		2008Q1		2011Q1 ¹		Vol. Change	
NAICS	Title	Est.	Emp.	Est.	Emp.	Est.	Emp.
211111	Crude Petroleum & Natural Gas Extraction	179	2,373	221	3,703	42	1,330
211112	Natural Gas Liquid Extraction	13	86	23	410	10	324
213111	Drilling Oil & Gas Wells	67	1,533	123	4,387	56	2,854
213112	Support Activities for Oil & Gas Operations	109	2,177	316	7,196	207	5,019
237120	Oil & Gas Pipeline & Related Structures	63	2,040	105	3,360	42	1,320
486210	Pipeline Transportation of Natural Gas	132	1,311	130	1,332	-2	21
Totals		563	9,520	918	20,387	355	10,868
Ancillary Industries		2008Q1		2011Q1 ¹		Vol. Change	
NAICS	Title	Est.	Emp.	Est.	Emp.	Est.	Emp.
221112	Fossil Fuel Electric Power Generation	64	4,300	63	4,123	-1	-176
221210	Natural Gas Distribution	141	4,760	165	4,843	24	83
221310	Water Supply & Irrigation Systems	371	6,638	381	6,694	10	55
221320	Sewage Treatment Facilities	475	4,247	483	4,348	8	100
237110	Water, Sewer, & Related Structure Const.	381	6,254	376	5,367	-5	-888
237310	Highway, Street, & Bridge Construction	526	17,940	535	18,052	9	113
238912	Nonresidential Site Preparation Contractors	613	9,341	641	8,466	28	-875
325110	Petrochemical Manufacturing	4	925	5	569	1	-356
325120	Industrial Gas Manufacturing	31	1,740	35	1,470	4	-270
331110*	Iron & Steel Mills & Ferroalloy Mfg.	73	13,652	62	12,989	-11	-663
331210	Iron, Pipe, & Tube Mfg. from Prchsd. Steel	45	4,523	36	3,441	-9	-1,082
333131	Mining Machinery & Equipment Mfg.	23	3,234	22	3,147	-1	-87
333132	Oil & Gas Field Machinery & Equip. Mfg.	8	373	9	335	1	-38
423810	Const. & Mining Mach. Equip. Wholesalers	225	4,048	205	3,518	-20	-530
423830	Industrial Machinery & Equip. Wholesalers	1,024	12,325	961	11,600	-63	-725
423840	Industrial Supplies Merchant Wholesalers	310	3,251	345	3,532	35	281
484110	General Freight Trucking, Local	1,222	8,326	1,273	9,637	51	1,311
484220	Specialized Freight Trucking, Local	1,056	9,604	1,155	11,454	99	1,850
484230	Specialized Freight Trucking, Long-Distance	290	3,649	264	3,177	-26	-472
531190	Lessors of Other Real Estate Property	242	794	242	770	0	-24
532412	Const., Mining, & Forestry Equip. Rental	102	2,120	138	2,766	36	645
541330	Engineering Services	2,449	41,538	2,518	41,966	69	429
541360	Geophysical Surveying & Mapping Services	58	288	52	188	-6	-100
541380	Testing Laboratories	393	7,116	401	7,520	8	404
541620	Environmental Consulting Services	459	3,014	472	3,170	13	156
562910	Remediation Services	218	2,547	243	2,706	25	159
811310	Comm. & Industrial Mach. & Equip. Repair	1,010	8,052	1,025	8,027	15	-25
924110	Admin. of Air & Water Res. & Waste Mgmt.	107	4,427	108	4,300	1	-128
924120	Admin. of Conservation Programs	316	4,344	318	4,150	2	-194
926130	Reg. & Admin. of Comm., Elec., Gas, & Util.	47	1,468	53	1,486	6	18
Totals		12,283	194,841	12,586	193,813	303	-1,028

Source: Industry Data is from Pennsylvania's Quarterly Census of Employment and Wages

- From 2008 Q1 to 2011 Q1, employment in core industries increased by 114.2%.
- Over the same period, employment in the ancillary industries decreased by 0.5%.
- Employment across all industries decreased 2.8% (appx. 160,000) over the same time period.

¹2011 Q1 QCEW data are initial. These data may be revised upon release of QCEW 2011Q2 data.

Notes: These data are not seasonally adjusted. While most change was due to actual growth or decline, some movement may be due to seasonal patterns or administrative changes to data.

*NAICS definition implemented with 2011Q1 data. Please see NAICS Changes in "Definitions" section on page 19.

WORKFORCE INVESTMENT AREA

MARCELLUS SHALE RELATED

INDUSTRIES DATA¹

The tables below depict employment growth in the core and ancillary industries for Workforce Investment Areas (WIA) with substantial Marcellus Shale drilling activity (number of Marcellus Shale wells drilled in 2010 in parentheses).

Northern Tier (762)	2008Q1	2011Q1¹	Vol. Change	Pct. Change
Core	87	1,893	1,806	2075.9%
Ancillary	1,621	3,044	1,423	87.8%

Southwest Corner (220)	2008Q1	2011Q1¹	Vol. Change	Pct. Change
Core	670	1,999	1,329	198.4%
Ancillary	10,034	10,759	725	7.2%

Central (162)	2008Q1	2011Q1¹	Vol. Change	Pct. Change
Core	115	1,597	1,482	1288.7%
Ancillary	8,913	10,314	1,401	15.7%

North Central (108)	2008Q1	2011Q1¹	Vol. Change	Pct. Change
Core	1,980	2,523	543	27.4%
Ancillary	3,908	4,229	321	8.2%

Tri-County (76)	2008Q1	2011Q1¹	Vol. Change	Pct. Change
Core	2,219	2,804	585	26.4%
Ancillary	8,876	8,788	-88	-1.0%

Westmoreland & Fayette (65)	2008Q1	2011Q1¹	Vol. Change	Pct. Change
Core	430	1,097	667	155.1%
Ancillary	9,842	9,842	0	0.0%

6 WIA Total	2008Q1	2011Q1¹	Vol. Change	Pct. Change
Core	5,501	11,913	6,412	116.6%
Ancillary	43,194	46,976	3,782	8.8%

Source: Industry Data is from Pennsylvania's Quarterly Census of Employment and Wages

- The Northern Tier WIA experienced the most rapid growth in Marcellus Shale core industries of all WIAs in terms of both volume and percentage; Northern Tier saw an increase of 1,806 employees from 2008Q1 to 2011Q1, for an increase of over 2,000%.
- The Central WIA was second in terms of employment growth by volume and by percentage with an employment increase of almost 1,300%.
- Across the six WIAs employment in the core industries increased by 116.6%; ancillary employment increased by 8.8%.
- Employment gains in Marcellus Shale related industries were seen in each WIA that had substantial Marcellus Shale drilling activity.

¹2011 Q1 QCEW data are initial. These data may be revised upon release of QCEW 2011Q2 data.

Notes: These data are not seasonally adjusted. While most change was due to actual growth or decline, some movement may be due to seasonal patterns or administrative changes to data.

WAGES FOR MARCELLUS SHALE

CORE & ANCILLARY INDUSTRIES¹

Core Industry Title	Average Wage²
Crude Petroleum & Natural Gas Extraction	\$97,003
Natural Gas Liquid Extraction	\$95,451
Drilling Oil & Gas Wells	\$76,542
Support Activities for Oil & Gas Operations	\$64,675
Oil & Gas Pipeline & Related Structures Construction	\$68,357
Pipeline Transportation of Natural Gas	\$82,549
Average	\$76,036
Ancillary Industries Title	Average Wage²
Fossil Fuel Electric Power Generation	\$108,084
Natural Gas Distribution	\$78,454
Water Supply & Irrigation Systems	\$54,241
Sewage Treatment Facilities	\$43,527
Water & Sewer Line & Related Structures Construction	\$64,379
Highway, Street, & Bridge Construction	\$54,506
Nonresidential Site Preparation Contractors	\$51,740
Petrochemical Manufacturing	\$74,199
Industrial Gas Manufacturing	\$77,507
Iron & Steel Mills & Ferroalloy Manufacturing*	\$72,114
Iron & Steel Pipe & Tube Manufacturing from Purchased Steel	\$58,300
Mining Machinery & Equipment Manufacturing	\$71,336
Oil & Gas Field Machinery & Equipment Manufacturing	\$62,560
Construction & Mining Machinery Equipment Wholesalers	\$58,417
Industrial Machinery & Equipment Merchant Wholesalers	\$65,078
Industrial Supplies Merchant Wholesalers	\$60,801
General Freight Trucking, Local	\$40,329
Specialized Freight Trucking, Local	\$44,792
Specialized Freight Trucking, Long-Distance	\$48,224
Lessors of Other Real Estate Property	\$40,525
Construction, Mining, & Forestry Machinery & Equip. Rental	\$75,268
Engineering Services	\$75,440
Geophysical Surveying & Mapping Services	\$51,001
Testing Laboratories	\$63,737
Environmental Consulting Services	\$66,003
Remediation Services	\$54,334
Commercial & Industrial Mach. & Equip. Repair & Maintenance	\$51,137
Admin. of Air & Water Res. & Solid Waste Mgmt. Programs	\$61,173
Admin. of Conservation Programs	\$48,439
Reg. & Admin. Of Communications, Electric, Gas, & Other Utils.	\$81,649
Average	\$62,581

Source: Industry Data is from Pennsylvania's Quarterly Census of Employment and Wages

- The average wage across all industries for 2010Q2 through 2011Q1 was \$46,222.
- The average wage in the core industries was approximately \$29,800 greater than the average for all industries; the average wage in the ancillary industries was more than \$16,400 higher.

¹ Average Wages for these industries were calculated by combining the most recent four quarters of available wage data; in this case 2010Q2 through 2011Q1.

²2011 Q1 QCEW data are initial. These data may be revised upon release of QCEW 2011Q2 data.

*NAICS definition implemented with 2011Q1 data. Please see NAICS Changes in "Definitions" section on page 19.

PENNSYLVANIA & WORKFORCE

INVESTMENT AREA MARCELLUS SHALE

RELATED INDUSTRIES ONLINE JOB POSTING ACTIVITY¹

Pennsylvania Statewide Online Job Postings

	Oct-2010	Oct-2011	Pct. Increase
Core Industries	184	346	88.0%
Ancillary Industries	2,543	3,328	26.4%
Total All Industries	158,954	178,293	12.2%

Select WIA Online Job Postings (core & ancillary combined)

WIA	Oct-2010	Oct-2011	Pct. Increase
Northern Tier	81	104	28.4%
Southwest Corner	92	160	73.9%
Central	103	204	98.1%
North Central	39	90	130.8%
Tri-County	57	101	77.2%
Westmoreland & Fayette	76	65	-14.5%
Total	448	724	61.6%

- **Pennsylvania Online Job Postings**
 - Total job postings across all industries for Pennsylvania were 12.2% higher in October 2011 than in October 2010.
 - The increase seen in Marcellus Shale related industries (30.9%) outpaced the overall trend in PA.
- **WIA Online Job Postings**
 - The largest percentage increase for job postings in the core and ancillary industries occurred in the North Central WIA with a rise of 130.8% from October 2010 to October 2011.
 - The Central WIA experienced the second highest level of job posting growth in October 2011, rising 98.1% over the year.
 - The six WIAs with a substantial amount of Marcellus Shale drilling activity saw online job postings for these industries increase by a combined 61.6% in October 2011 compared to October 2010.

¹ Job Postings are counted using Wanted Analytics' Help Wanted Online job posting spidering tool. Job posting increases should be viewed as an indication of **trend only**. For a complete explanation of this data set, please refer to the Definitions section of this document.

STATEWIDE HIGH-PRIORITY OCCUPATIONS

RELATED TO MARCELLUS SHALE

The occupations listed in the table below are found within the staffing patterns of Marcellus Shale related core and ancillary industries and have been identified as High Priority for Pennsylvania. High-Priority Occupations (HPOs) are identified as in demand by employers, have higher skills needs, and are most likely to provide family sustaining wages.

A Standard Occupational Code (SOC) is provided for each occupation. For a complete list of terms, please refer to the Staffing Pattern definition on page 18.

SOC Code	SOC Title	Average Annual Wage	Education Level
13-1051	Cost Estimators	\$60,120	Bachelor's degree
17-2112	Industrial Engineers	\$77,310	Bachelor's degree
41-4011	Sales Representatives, Scientific & Technical	\$87,120	Related work exper
43-3021	Billing & Posting Clerks & Machine Operators	\$32,200	Short-term OJT
43-3031	Bookkeeping, Accounting & Auditing Clerks	\$35,540	Moderate-term OJT
43-4051	Customer Service Representatives	\$36,620	Moderate-term OJT
43-5061	Production, Planning & Expediting Clerks	\$38,800	Moderate-term OJT
43-6014	Secretaries	\$30,650	Moderate-term OJT
43-9061	Office Clerks	\$28,760	Short-term OJT
47-1011	Supervisors - Construction Trades & Extraction Workers	\$64,630	Related work exper
47-2061	Construction Laborers	\$33,290	Moderate-term OJT
47-2073	Operating Engineers	\$43,740	Moderate-term OJT
47-2152	Plumbers, Pipefitters & Steamfitters	\$52,450	Long-term OJT
49-1011	Supervisors - Mechanics, Installers & Repairers	\$63,800	Related work exper
49-9041	Industrial Machinery Mechanics	\$44,940	Long-term OJT
49-9042	Maintenance & Repair Workers	\$36,390	Moderate-term OJT
49-9051	Electrical Power-Line Installers & Repairers	\$58,220	Long-term OJT
49-9052	Telecommunications Line Installers & Repairers	\$54,240	Long-term OJT
51-1011	Supervisors - Production & Operating Workers	\$55,800	Related work exper
51-4121	Welders, Cutters, Solderers & Brazers	\$36,250	Postsec award
51-9061	Inspectors, Testers, Sorters, Samplers & Weighers	\$36,540	Moderate-term OJT
53-1031	Supervisors - Transportation & Vehicle Operators	\$58,600	Related work exper
53-3032	Truck Drivers, Heavy & Tractor-Trailer	\$41,360	Short-term OJT
53-7062	Laborers & Freight, Stock & Material Movers	\$27,650	Short-term OJT

Source: The Center for Workforce Information & Analysis

Workforce development funding in the commonwealth may be available for training programs required to enter these occupations.

REGIONAL HIGH-PRIORITY OCCUPATIONS RELATED TO MARCELLUS SHALE

The occupations listed in the table below are found within the staffing patterns of Marcellus Shale related core industries and have been identified as High-Priority for certain Workforce Investment Areas (WIAs).¹ High Priority Occupations (HPOs) are identified as in demand by employers, have higher skills needs, and are most likely to provide family sustaining wages.

A Standard Occupational Code (SOC) is provided for each occupation. For a complete list of terms, please refer to the Staffing Pattern definition on page 18.

SOC Code	SOC Title	Average Annual Wage	Education Level
17-2151	Mining & Geological Engineers	\$60,120	Bachelor's degree
17-3023	Electrical & Electronic Engineering Technicians	\$77,310	Bachelor's degree
17-3025	Environmental Engineering Technicians	\$87,120	Related work exper
19-2042	Geoscientists	\$32,200	Short-term OJT
19-4041	Geological & Petroleum Technicians	\$35,540	Moderate-term OJT
45-4022	Logging Equipment Operators	\$36,620	Moderate-term OJT
47-5011	Derrick Operators, Oil & Gas	\$38,800	Moderate-term OJT
47-5012	Rotary Drill Operators, Oil & Gas	\$30,650	Moderate-term OJT
47-5013	Service Unit Operators, Oil, Gas & Mining	\$28,760	Short-term OJT
47-5071	Roustabouts, Oil & Gas	\$64,630	Related work exper
49-3042	Mobile Heavy Equipment Mechanics	\$33,290	Moderate-term OJT
51-4122	Welding, Soldering & Brazing Machine Setters	\$43,740	Moderate-term OJT
53-7071	Gas Compressor & Gas Pumping Station Operators	\$52,450	Long-term OJT
53-7072	Pump Operators	\$63,800	Related work exper
53-7073	Wellhead Pumps	\$44,940	Long-term OJT

Source: The Center for Workforce Information & Analysis

Each of the occupations in this table has been identified as an HPO in one or more of the following WIAs: Central, North Central, Northern Tier, Northwest, Southwest Corner, Three Rivers, Tri-County, West Central, and Westmoreland-Fayette.

Bolded occupations are HPOs in each WIA listed above. For a complete list of HPOs by Local Workforce Investment Area, please refer to:

<http://www.paworkstats.state.pa.us/gsipub/index.asp?docid=504>

Workforce development funding in the commonwealth may be available for training programs required to enter these occupations.

¹ These occupations were added to Local Workforce Investment Areas HPO lists through the HPO petition process.

PENNSYLVANIA MARCELLUS SHALE RELATED INDUSTRIES NEW HIRES

Core Industries	Volume of New Hires by Quarter				Change 2008Q2 - 2011Q2	
Title	2008Q2	2009Q2	2010Q2	2011Q2	Vol.	Pct.
Crude Petroleum & Natural Gas	235	149	414	348	113	48.1%
Natural Gas Liquid Extraction	13	9	58	73	60	461.5%
Drilling Oil & Gas Wells	180	211	356	434	254	141.1%
Support Activities for Oil & Gas	281	170	704	1,009	728	259.1%
Oil & Gas Pipeline & Related Structures	153	93	202	246	93	60.8%
Pipeline Transportation of Natural Gas	32	36	16	19	-13	-40.6%
Total	894	668	1,750	2,129	1,235	138.1%
Ancillary Industries	Volume of New Hires by Quarter				Change 2008Q2 - 2011Q2	
Title	2008Q2	2009Q2	2010Q2	2011Q2	Vol.	Pct.
Fossil Fuel Electric Power Generation	43	19	32	25	-18	-41.9%
Natural Gas Distribution	205	131	173	223	18	8.8%
Water Supply & Irrigation Systems	151	130	70	124	-27	-17.9%
Sewage Treatment Facilities	158	130	113	107	-51	-32.3%
Water, Sewer Line & Related Structures	577	389	479	472	-105	-18.2%
Highway, Street, & Bridge Construction	3,445	3,250	3,344	3,219	-226	-6.6%
Nonresidential Site Preparation	1,001	595	809	731	-270	-27.0%
Petrochemical Manufacturing	22	7	9	17	-5	-22.7%
Industrial Gas Manufacturing	9	4	11	45	36	400.0%
Iron & Steel Mills & Ferroalloy Mfg.*	567	356	444	692	125	22.0%
Iron, Steel Pipe, Tube Mfg. from Prchsd. Steel	206	99	166	246	40	19.4%
Mining Machinery & Equipment Mfg.	237	87	201	339	102	43.0%
Oil & Gas Field Machinery & Equipment	4	1	6	5	1	25.0%
Const. & Mining Mach. Equip. Wholesalers	193	173	218	198	5	2.6%
Industrial Mach. & Equip. Wholesalers	565	274	448	638	73	12.9%
Industrial Supplies Merchant Wholesalers	246	81	256	297	51	20.7%
General Freight Trucking, Local	643	543	527	534	-109	-17.0%
Specialized Freight Trucking, Local	622	402	601	946	324	52.1%
Specialized Freight Trucking, Long-	164	114	231	176	12	7.3%
Lessors of Other Real Estate Property	39	41	57	43	4	10.3%
Const., Mining, & Forestry Mach. & Equip.	170	186	192	206	36	21.2%
Engineering Services	4,189	3,158	4,191	5,131	942	22.5%
Geophysical Surveying & Mapping	10	14	12	11	1	10.0%
Testing Laboratories	493	310	763	764	271	55.0%
Environmental Consulting Services	215	161	197	275	60	27.9%
Remediation Services	504	355	464	445	-59	-11.7%
Commercial & Industrial Mach. & Equip.	359	227	323	417	58	16.2%
Admin. Of Air & Water Res. & Waste	5	5	11	9	4	80.0%
Admin. of Conservation Programs	7	6	14	7	0	0.0%
Reg. & Admin. of Comm., Elec., Gas &	1	19	32	25	24	2400.0%
Totals	15,050	11,248	14,362	16,342	1,292	8.6%

- In 2011 Q2 there were 2,129 New Hires in the Marcellus Shale related core industries. This was 138.1% higher than 2008 Q2
- In 2011 Q2 there were 16,342 New Hires in the Marcellus Shale related ancillary industries. This was 8.6% higher than 2008 Q2.
- Across all industries in Pennsylvania, total New Hires in 2011 Q2 were 8.3% lower than in 2008 Q2

Note: In every economy there is job creation and job destruction every month and the result is employment change. New hires are linked to job creation; however, an increase in new hires does not directly equate to an increase in the total employment count. The new hires count is simply an indication of hiring activity in an industry. Separations, in the form of layoffs or quits, are linked to job destruction and account for the other half of the employment change equation. The balance of hires and separations result in the employment change.

*NAICS definition implemented with 2011Q1 data. Please see NAICS Changes in "Definitions" section on page 19.

WORKFORCE INVESTMENT AREA

MARCELLUS SHALE RELATED

INDUSTRIES NEW HIRES

The tables below depict the number of new hires in the core and ancillary industries for WIAs with substantial Marcellus Shale drilling activity during the second quarter of each year from 2008 to 2011. Volume change and percent change are both based on 2008Q2 to 2011Q2 calculations.

Northern Tier	2008Q2	2009Q2	2010Q2	2011Q2	Vol. Change	Pct. Change
Core	0	1	82	170	170	N/A
Ancillary	41	38	147	184	143	348.8%

Southwest Corner	2008Q2	2009Q2	2010Q2	2011Q2	Vol. Change	Pct. Change
Core	36	41	243	218	182	505.6%
Ancillary	354	308	329	380	26	7.3%

Central	2008Q2	2009Q2	2010Q2	2011Q2	Vol. Change	Pct. Change
Core	0	1	98	191	191	N/A
Ancillary	252	291	225	396	144	57.1%

North Central	2008Q2	2009Q2	2010Q2	2011Q2	Vol. Change	Pct. Change
Core	113	170	254	463	350	309.7%
Ancillary	118	53	119	169	51	43.2%

Tri-County	2008Q2	2009Q2	2010Q2	2011Q2	Vol. Change	Pct. Change
Core	214	74	209	179	-35	-16.4%
Ancillary	536	381	552	591	55	10.3%

Westmoreland & Fayette	2008Q2	2009Q2	2010Q2	2011Q2	Vol. Change	Pct. Change
Core	9	11	65	32	23	255.6%
Ancillary	473	423	626	682	209	44.2%

6 WIA Total	2008Q2	2009Q2	2010Q2	2011Q2	Vol. Change	Pct. Change
Core	372	298	951	1,253	881	236.8%
Ancillary	1,774	1,494	1,998	2,402	628	35.4%

- Across these six WIAs, there were more than three times as many new hires in the Marcellus Shale related core industries in 2011Q2 than in 2008Q2; there were 35% more new hires in the ancillary industries in 2011Q2 than in 2008Q2.
- Five of the six WIAs had more new hires in the core industries in 2011Q2 than in 2008Q2; all six WIAs saw more new hire activity in the ancillary industries in 2011Q2 than in 2008Q2.
- Northern Tier WIA and Central WIA had no new hires in the core industries in 2008Q2, but combined for 361 core new hires in 2011Q2.

QUARTERLY WORKFORCE INDICATORS

(based on the U.S. Census Bureau, Local Employment Dynamics (LED))

Percentage of Industry¹ Employment by Age Group (2010Q4)

Northern Tier	14-24	25-34	35-44	45-54	55+
All industry groups	13.2%	18.3%	21.5%	25.7%	21.3%
2111 Oil and Gas Extraction	***	26.3%	21.1%	28.9%	***
2131 Support Activities for Mining	21.5%	33.6%	20.2%	16.7%	7.8%
2371 Utility System Construction	10.2%	22.3%	21.9%	28.8%	16.8%
4862 Pipeline Transportation of Natural Gas	3.4%	17.2%	19.5%	40.2%	19.5%

Southwest Corner	14-24	25-34	35-44	45-54	55+
All industry groups	12.4%	19.3%	20.2%	25.0%	23.2%
2111 Oil and Gas Extraction	***	33.1%	23.3%	24.4%	11.3%
2131 Support Activities for Mining	15.9%	37.4%	24.2%	15.9%	6.7%
2371 Utility System Construction	12.8%	24.2%	24.4%	20.1%	18.4%
4862 Pipeline Transportation of Natural Gas	***	15.2%	22.8%	38.0%	***

Central	14-24	25-34	35-44	45-54	55+
All industry groups	13.2%	18.7%	20.9%	25.2%	22.0%
2111 Oil and Gas Extraction	***	49.3%	19.3%	12.7%	***
2131 Support Activities for Mining	17.7%	32.3%	24.7%	16.9%	8.4%
2371 Utility System Construction	***	20.9%	21.0%	27.2%	21.8%
4862 Pipeline Transportation of Natural Gas	***	14.4%	24.0%	38.5%	19.2%

North Central	14-24	25-34	35-44	45-54	55+
All industry groups	12.2%	18.0%	21.6%	26.1%	22.1%
2111 Oil and Gas Extraction	***	20.3%	21.6%	29.0%	22.1%
2131 Support Activities for Mining	15.9%	31.9%	20.2%	21.6%	10.5%
2371 Utility System Construction	22.8%	28.1%	20.0%	18.9%	10.2%
4862 Pipeline Transportation of Natural Gas	2.4%	12.9%	19.1%	40.6%	25.0%

Tri-County	14-24	25-34	35-44	45-54	55+
All industry groups	13.5%	19.3%	20.5%	25.1%	21.6%
2111 Oil and Gas Extraction	***	24.4%	18.7%	32.0%	20.0%
2131 Support Activities for Mining	11.4%	27.1%	23.4%	24.6%	13.5%
2371 Utility System Construction	8.1%	23.0%	24.4%	27.6%	16.8%
4862 Pipeline Transportation of Natural Gas	***	37.0%	18.5%	29.6%	11.1%

Westmoreland & Fayette	14-24	25-34	35-44	45-54	55+
All industry groups	12.9%	18.3%	20.6%	25.4%	22.6%
2111 Oil and Gas Extraction	10.1%	27.2%	22.7%	26.5%	13.2%
2131 Support Activities for Mining	13.4%	34.2%	26.5%	17.1%	8.8%
2371 Utility System Construction	9.4%	23.2%	22.5%	27.9%	17.1%
4862 Pipeline Transportation of Natural Gas	1.7%	14.6%	18.5%	42.7%	***

*** Indicates that data cannot be disclosed due to confidentiality restrictions or data quality standards

- Workers in the Marcellus Shale related industry groups tended, on average, to be younger than the total across all industries.
- The percentage of workers in core related industry groups aged 55 and over was smaller than found across all industries.

¹ Local Employment Dynamics data are only available at the 4-digit NAICS level. While these industry groups contain some employment from non-Marcellus Shale related core industries, they help to provide an understanding of the industries' employment composition by age.

MARCELLUS WELLS DRILLED & UNEMPLOYMENT RATES

Marcellus Shale Wells Drilled by Year & Unemployment Rates
(seasonally adjusted) by Workforce Investment Area

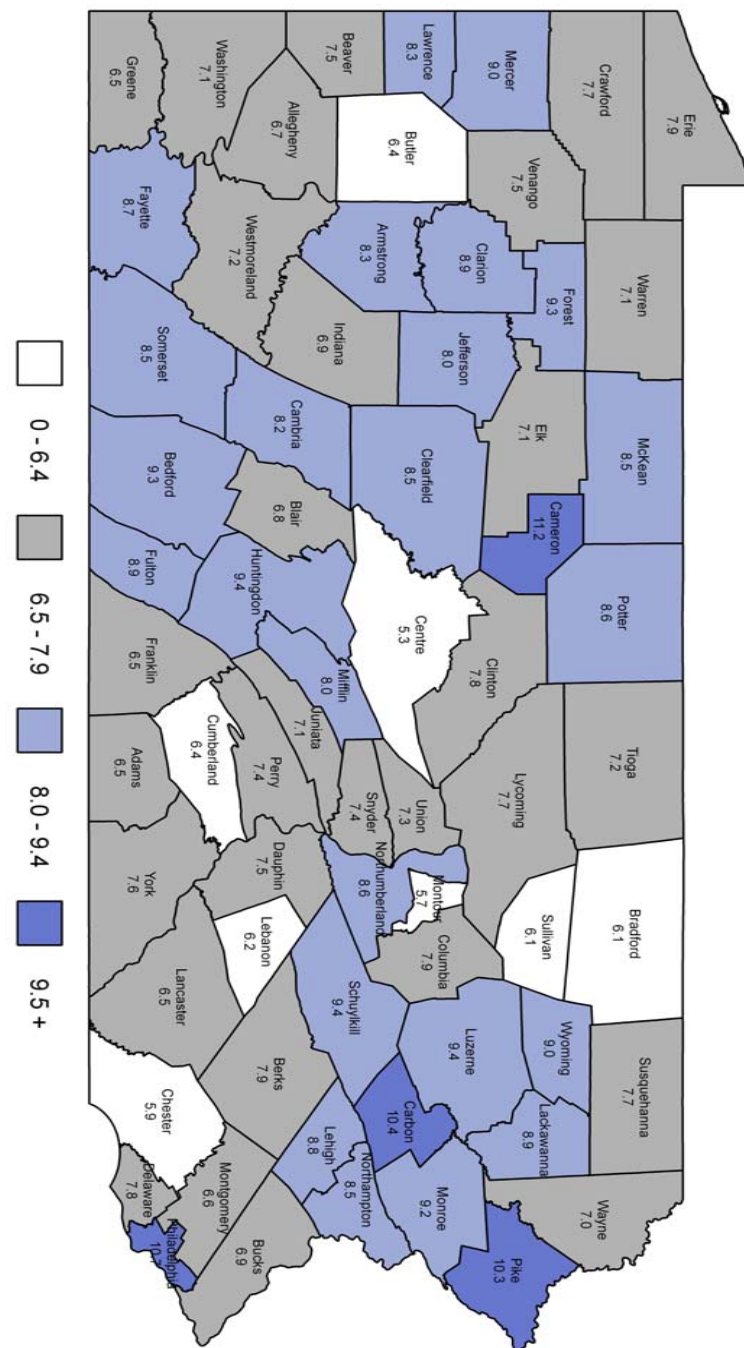
Workforce Investment Area	2009	2010	2011 ¹	October 2011 Unemployment Rate (UR)	UR Change Oct. '09 to Oct. '11
Northern Tier	288	782	784	7.1	-1.7
Southwest Corner	229	220	225	7.2	-1.3
Central	43	182	274	7.2	-1.6
North Central	52	108	112	8.2	-2.8
Tri County	33	76	83	6.8	-1.3
Westmoreland & Fayette	101	65	94	7.6	-1.2
Pennsylvania Total	763	1,454	1,600	8.1	-0.4

Sources: PA Department of Environmental Protection & Local Area Unemployment Statistics

- The six WIAs in the table above accounted for more than 98 percent of the Marcellus Shale wells drilled in Pennsylvania from January 2009 to October 2011.
- The number of Marcellus Shale wells drilled from January to October 2011 was 35.9 percent higher than over the same nine month period in 2010.
- There have been more Marcellus Shale wells drilled in the first 10 months of 2011 than in all of 2010 across Pennsylvania, and in each of the six WIAs with substantial Marcellus Shale drilling.
- All six of the WIAs with substantial Marcellus Shale drilling have experienced unemployment rate decreases above the statewide decrease from October 2009 to October 2011
- North Central WIA, while still 0.1 percentage points higher than the state, had the largest decrease in unemployment rate over the past 2 years.

¹ 2011 Wells Drilled Data includes wells drilled from January 2011 through October 2011

PENNSYLVANIA UNEMPLOYMENT RATES BY COUNTY OCTOBER 2011



DEFINITIONS:

LABOR FORCE STATISTICS* - Source: Pennsylvania Local Area Unemployment Statistics (LAUS).

The labor force and unemployment data are based on the same concepts and definitions as those used for the official national estimates obtained from the Current Population Survey (CPS). The Local Area Unemployment Statistics (LAUS) program measures employment and unemployment on a place-of-residence basis and produces estimates using equations based on regression techniques. This method utilizes data from several sources, including the CPS, the CES, and state unemployment insurance (UI) programs. The LAUS program does not produce estimates for any demographic groups.

Unemployment Rate: the number unemployed as a percent of the labor force.

Unemployment: Unemployed persons are persons aged 16 years and older who had no employment during the reference week (contains the 12th day of the month), were available for work (except for temporary illness), and had made specific efforts to find employment sometime during the 4-week period ending with the reference week. Persons who were waiting to be recalled to jobs from which they had been laid off need not to have been looking for work to be classified as unemployed.

Employment: Employed persons are all persons who, during the week which includes the 12th day of the month, (a) did any work as paid employees, worked in their own businesses or professions or on their own farm, or worked 15 hours or more as unpaid workers in enterprises operated by members of their families, or (b) were not working but who had jobs from which they were temporarily absent. Each employed person is counted only once, even if the person holds more than one job. Included are the self-employed, unpaid family workers, agricultural workers, and private household workers, who are excluded by the Current Employment Statistics survey.

Labor Force: all persons either working or looking for work or classified as employed or unemployed.

JOBS* - Source: Pennsylvania Department of Labor & Industry, Current Employment Statistics (CES).

Each month the Current Employment Statistics program surveys about 200,000 national businesses and government agencies in order to provide detailed industry data on employment, hours, and earnings of workers on non-farm payrolls. This is a collaborative effort between BLS and the states. CES produces a count of jobs, not of people.

Nonfarm Jobs: Employment is the total number of persons on establishment payrolls employed full or part time who received pay for any part of the pay period that includes the 12th day of the month. Temporary and intermittent employees are included, as are any employees who are on paid sick leave, on paid holiday, or who work during only part of the specified pay period. A striking employee who only works a small portion of the survey period, and is paid, would be included as employed under the CES definitions. Persons on the payroll of more than one establishment are counted in each establishment. Data exclude proprietors, self-employed, unpaid family or volunteer workers, farm workers, and domestic workers. Persons on layoff the entire pay period, on leave without pay, on strike for the entire period, or who have not yet reported for work are not counted as employed. Government employment covers only civilian employees.

***THESE DATA ARE SEASONALLY ADJUSTED:** Seasonal adjustment removes the change in employment that is due to normal seasonal hiring or layoffs (holidays, weather, etc.), thus leaving an over-the-month change that reflects only employment changes due to trend and irregular movements.

DEFINITIONS:

QUARTERLY WORKFORCE INDICATORS - Source: U.S. Census Bureau, Local Employment Dynamics

The Quarterly Workforce Indicators (QWI) are a set of economic indicators that can be queried by different levels of geography as well as by industry, gender, and age of workers. The QWI are built upon wage records in the Unemployment Insurance (UI) system and information from state Quarterly Census of Employment and Wages (QCEW) data.

QUARTERLY CENSUS OF EMPLOYMENT AND WAGES - Source: The Pennsylvania Department of Labor & Industry, Quarterly Census of Employment and Wages

Employment: Employment data include all employment covered under the Pennsylvania Unemployment Compensation program for each of the three months in the quarter. The employment count represents the number of full-time and part-time employees who worked during or received pay for the payroll period including the 12th of the month. The employment totals for each month are averaged for the quarter employment count. Included are persons on paid vacations or on paid sick leave. Workers temporarily earning no wages due to labor-management disputes, layoffs or other reasons are not reported as employed. Persons on the payroll of more than one employer during the same reference week are reported more than once.

Establishment: The location of a certain economic activity, such as a factory, store, office, or mine, that produces goods or services. It is typically at a single physical location and engaged in one, or predominantly one, type of economic activity. An employer may have one or more establishments.

Wages: Total wages include total compensation paid during a calendar quarter (including bonuses). Average wages are calculated by dividing total wages for a quarter by average employment in that quarter.

STAFFING PATTERNS - Source: Pennsylvania Department of Labor & Industry

Staffing Pattern: A listing of the occupations most commonly found within a particular industry. This information comes from the biennial *Long-Term Occupational Employment Projections* data.

Average Annual Wage: The mean annual wage earned by workers in the occupation, assuming 40 hours per week, 52 weeks a year. Wage data is derived from the annual *Occupational Employment Statistics (OES)* survey.

Educational Attainment: The Bureau of Labor Statistics (BLS) identifies 11 categories that have been used in career planning. These categories describe the most significant postsecondary education or training pathway to employment for workers in that occupation.

Educational Attainment Level Abbreviations:

- Short-term or Moderate-term OJT – basic tasks and skills are learned through a period of on-the-job training lasting up to one year.
- Long-term training – knowledge and skills are developed through years of on-the-job training or formal classroom instruction.
- Related work exper – training is gained through hands-on work in a similar occupation
- Postsecondary award – training is gained through a vocational training program.
- Associate degree – degree completed after two years of full-time schooling beyond high school
- Bachelor's degree – degree completed after four years of full-time schooling beyond high school
- Degree plus exper – a four-year bachelor's degree plus experience gained through hands-on experience
- Masters, Doctoral, or Professional degree – training at the college or university level beyond a four-year bachelor's degree.

DEFINITIONS:

NEW HIRES • Source: *The Pennsylvania Department of Labor & Industry*

New Hire Reporting is a process by which employers report information on all employees hired on or after January 1, 1998 to locate non-custodial parents, establish child support orders, or enforce existing orders. Company and individual data are confidential and cannot be reported on. However, the data can be aggregated to show where and in what industries hiring is taking place as an indication of what sectors of the economy are experiencing growth or decline. Approximately sixty percent of all new hires are captured. New hire counts by industry are an indication of trend only.

HELP WANTED ONLINE ADS • Source: *The Conference Board Help Wanted OnLine™ data set*

The Conference Board Help Wanted OnLine data set provides real-time insight into the employment marketplace through the world's largest database of online job ads. Jobs ads can be classified by industry, occupation, employer, and geographic area. Data are analyzed for employment trends and to forecast economic conditions. The underlying data for The Conference Board HWOL are provided by Wanted Technologies Corporation.

MAP OF MARCELLUS SHALE FORMATION - Source: *Department of Environmental Protection.*

WORKFORCE INVESTMENT AREA (WIA)

A WIA is labor market area that is usually a group of contiguous counties, where employment, training and educational services are provided. Established through the Workforce Investment Act to provide services for dislocated workers and other eligible individuals, Pennsylvania's 22 WIAs are based on common geographic and economic factors.

NAICS CHANGES

The North American Industry Classification System (NAICS), established in 1997, is reviewed for potential revisions every five years. The latest revision (2012) was implemented by BLS in the QCEW program with the release of 1st quarter 2011 data. As part of this revision, the NAICS code of only one Marcellus Shale related industry was impacted: NAICS 331111 (Iron & Steel Mills). The NAICS 2012 structure eliminated NAICS 331111, combining it with NAICS 331112 (Electrometallurgical ferroalloy product manufacturing) to form NAICS 331110 (Iron & Steel Mills and Ferroalloy Manufacturing). To account for this change, the Marcellus Shale ancillary industry list was modified to change NAICS 331111 to NAICS 331110, and all ancillary industry data will now include NAICS 331110. **To retain comparability, for time periods prior to 2011, data for NAICS 331111 & 331112 will be combined and shown under NAICS 331110.**

MARCELLUS SHALE FORMATION

